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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/764,660

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Wen Tong

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EXAMINER

VOLPER, THOMAS E

ART UNIT

PAPER NUMBER

2665

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

09/764,660

Applicant(s)

TONG ET AL.

Examiner

Thomas Volper

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) 8-14, 20-24, 30-35, 39-41 and 45-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 15-19, 25-29, 36-38 and 42-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I: claims 1-7, 15-19, 25-29, 36-38 and 42-44 in the reply filed on 30 June 2004 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 15, 37 and 43 are rejected under 35 U.S.C. 102(e) as being anticipated by Anders Nystrom et al. (US 6,189,123).

Regarding claims 15, 37 and 43, Anders Nystrom discloses transmitting a first transmission set that includes parity bits to a receiver, and if the receiver does not successfully decode the transmission set, additional parity bits are sent in the next transmission and combined with the original transmission (col. 3, lines 1-35).

4. Claims 25-27, 38 and 44 rejected under 35 U.S.C. 102(e) as being anticipated by Kalliojarvi (US 6,438,723).

Regarding claims 25-27, 38 and 44, Kalliojarvi discloses sending packets at successively lower codes rates to a receiver, wherein the successive retransmissions continue as long as the packet is not correctly decoded at the receiver (col. 11, lines 17-28). With each retransmission the additional information is combined with previously sent information before attempting to decode (col. 10, lines 23-46).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-7, 36 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anders Nystrom et al. (US 6,189,123) in view of Kalliojarvi (US 6,438,723).

Regarding claims 1, 36 and 42, Anders Nystrom discloses transmitting an encoded block of digital data, which is comprised of portions of digital data and makes up a transmission set, to a receiver in a first transmission (col. 7, lines 9-24). If a determination is made that the transmission set was not successfully decoded, the receiver makes a request for retransmission (col. 49-62). The same transmission set cannot be retransmitted until another dissimilar set is first transmitted (col. 8, lines 7-9), and any selected portion of any selected one or more encoded versions of the block of symbols may be retransmitted (col. 9, lines 61-64). This meets the limitation of sending a first block portion of the original transmission set in a retransmission, wherein the original transmission set contained more than one block portion. Anders Nystrom also

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discloses that the retransmission set may be formed from a second encoded version of the original digital data block (col. 10, lines 53-57), but fails to expressly disclose that the second encoded version is sent at a different transmission data rate. Kalliojarvi discloses retransmissions with successively more parity bits per retransmission, which produces a successively lower data rate (col. 11, lines 17-23). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a different transmission data rate in sending the first retransmission. One of ordinary skill in the art would have been motivated to do this in order to have a better chance of successfully decoding the original digital data block after the retransmission.

Regarding claim 2, Anders Nystrom discloses successively-redundant, iterative transmission of addition transmission sets can be performed (col. 7, lines 63-67). Anders Nystrom fails to expressly disclose including in a second retransmission a second portion of the originally encoded digital data block. Kalliojarvi discloses retransmitting whichever subpackets were in error when a diversity-combined superpacket has not been successfully decoded at a receiving end (col. 10, lines 23-46). This meets the limitation of a second retransmission, or third transmission, that includes a second block portion of the original block. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to retransmit a second block portion if the combined digital data block was not successfully decoded at the receiver. One of ordinary skill in the art would have been motivated to do this in order to provide additional copies of portions of the data block that were in error, thus resulting in a better chance of successfully decoding the original data block.

Regarding claims 3 and 4, as stated above, Anders Nystrom discloses successively-redundant, iterative transmission of additional transmission sets can be performed to ensure a better chance of recovering the digital data block at the receiver (col. 7, lines 63-67). Thus it is obvious that as many iterations as needed by be performed. Also as described above, it would be obvious to use a different coding rate in view of Kalliojarvi in order to provide better chance of successfully decoding a combined digital data block.

Regarding claim 5, as stated above, Kalliojarvi discloses using successively more parity bits in rounds of retransmission. This relates directly to a lower transmission data rate. It is obvious to combine this feature with Anders Nystrom to improve the ability to successfully decode a combined digital data block as mentioned above.

Regarding claims 6 and 7, Anders Nystrom discloses that the sending station may be a radio base station while the receiving station may be a mobile terminal, and vice versa (col. 6, lines 52-58).

7. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anders Nystrom et al. (US 6,189,123) as applied to claims 15, 37 and 43 above, and further in view of Ghosh et al. (US 6,308,294).

Regarding claims 16 and 17, Anders Nystrom fails to expressly disclose sending a third transmission to the receiver that includes the first parity bits, and also does not disclose sending a fourth transmission to the receiver that includes the second parity bits. Ghosh discloses a procedure for sending alternating sets of first and second parity bits when decoding is not successful at the receiver (see Figure 3; col. 3, line 53 – col. 4, line

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37). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to send the additional transmissions of alternating sets of first and second parity bits in the invention of Anders Nystrom. One of ordinary skill in the art would have been motivated to do this in order to increase the probability of correction decoding of the data block.

Regarding claims 18 and 19, Anders Nystrom discloses that the sending station may be a radio base station while the receiving station may be a mobile terminal, and vice versa (col. 6, lines 52-58).

8. Claims 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kalliojarvi (US 6,438,723) as applied to claims 25-27, 38 and 44 above, and further in view of Anders Nystrom et al. (US 6,189,123).

Regarding claims 28 and 29, Kalliojarvi fails to expressly disclose that the transmitter is a base station and the receiver is a user terminal, and vice versa. Anders Nystrom discloses a successively redundant retransmission system wherein the sending station may be a radio base station while the receiving station may be a mobile terminal, and vice versa (col. 6, lines 52-58). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a base station and user terminal as the transmitter and receiver, or vice versa, in the invention of Kalliojarvi. One of ordinary skill in the art would have been motivated to do this because mobile networks contain noisy channels susceptible to information loss, and therefore would benefit from the application of Kalliojarvi's retransmission system.

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Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Cudak et al. (US 6,275,488) Variable Rate Spread Spectrum Communication Method and Apparatus

- Eroz et al. (US 6,370,669) Sets of Rate-Compatible Universal Turbo Codes Nearly Optimized Over Various Rates and Interleaver Sizes

- Ketseoglou (US 6,138,260) Retransmission Packet Capture System Within a Wireless Multiservice Communications Environment with Turbo Decoding

- Doetsch et al. (US 6,625,179) Method for Transmitting Data in a Digital Transmission System Given a Packet-Switched Service

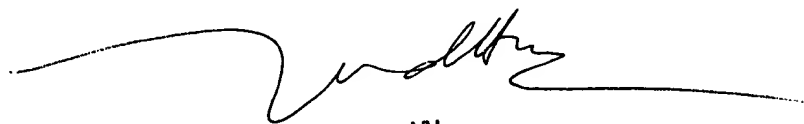
10. Any inquiry concerning this communication, or earlier communications from the examiner should be directed to Thomas Volper whose telephone number is (571) 272-3151. The examiner can normally be reached between 8:30am and 5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached at (571) 272-3155. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

Thomas E. Volper



September 2, 2004



HUY D. VU
SUPERVISORY PATENT EXAMINER
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